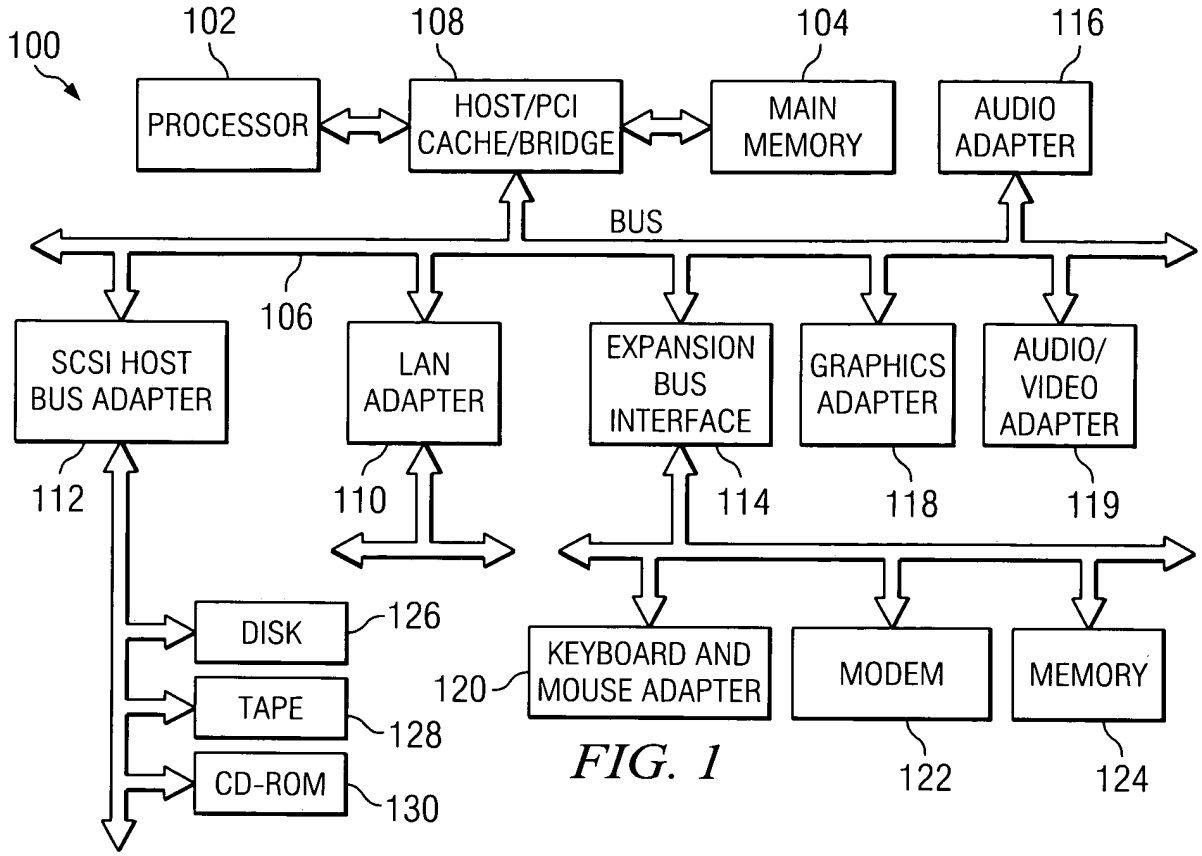

FIG. 1

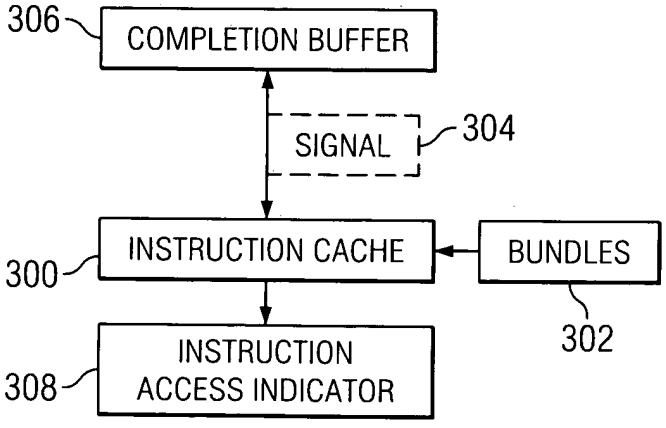

FIG. 3

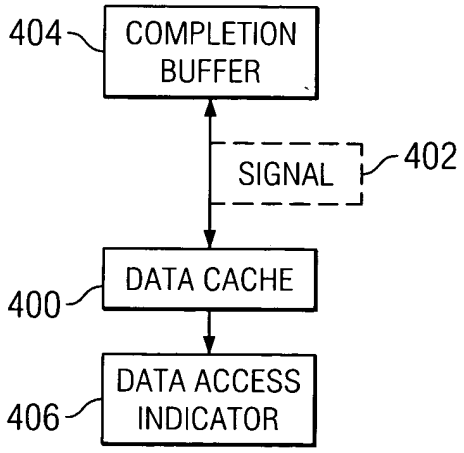

FIG. 4

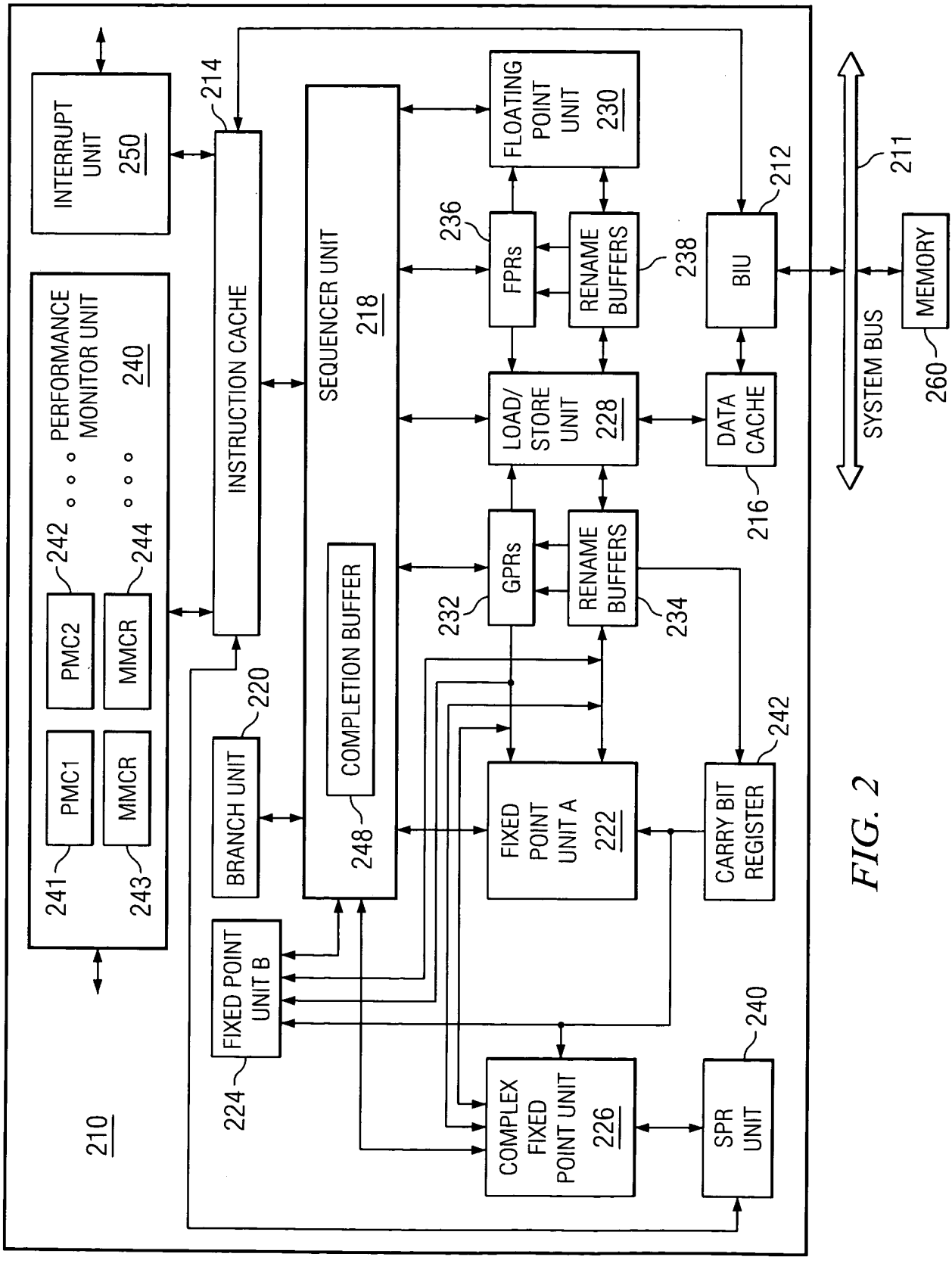
INTERRUPT UNIT 250
214
INSTRUCTION CACHE
SEQUENCER UNIT 218
COMPLETION BUFFER 248
FLOATING POINT UNIT 230
236
FPRs
RENAME BUFFERS
238
BIU
212
211
SYSTEM BUS
MEMORY
260
LOAD/ STORE UNIT 228
DATA CACHE
216
GPRs
232
RENAME BUFFERS
234
PERFORMANCE MONITOR UNIT 240
242
PMC2
MMCR
244
PMC1
MMCR
241
243
BRANCH UNIT
220
FIXED POINT UNIT A 222
CARRY BIT REGISTER
242
FIXED POINT UNIT B
224
COMPLEX FIXED POINT UNIT 226
SPR UNIT
240
210

FIG. 2

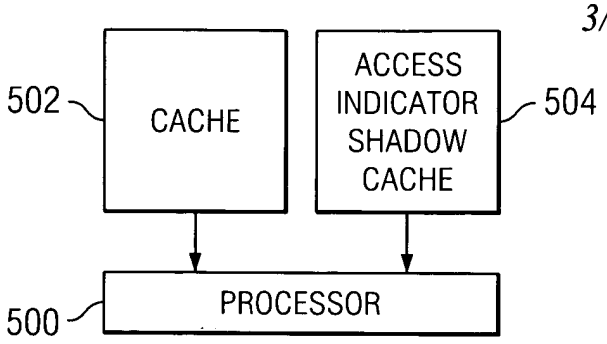

FIG. 5

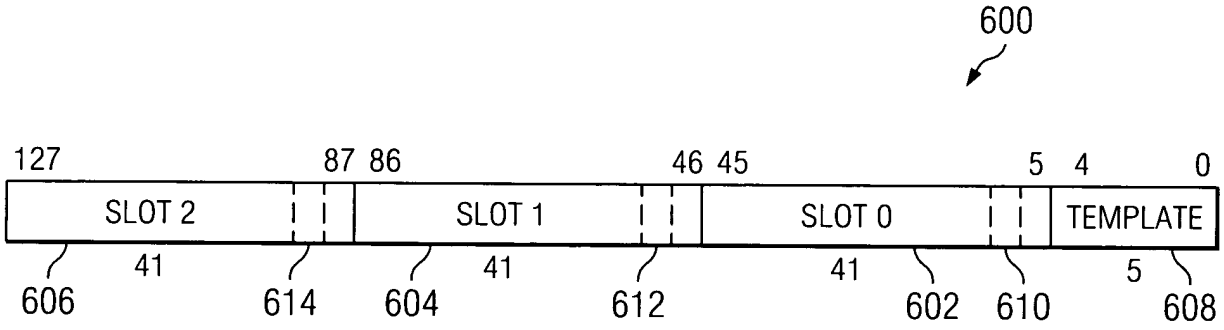

FIG. 6

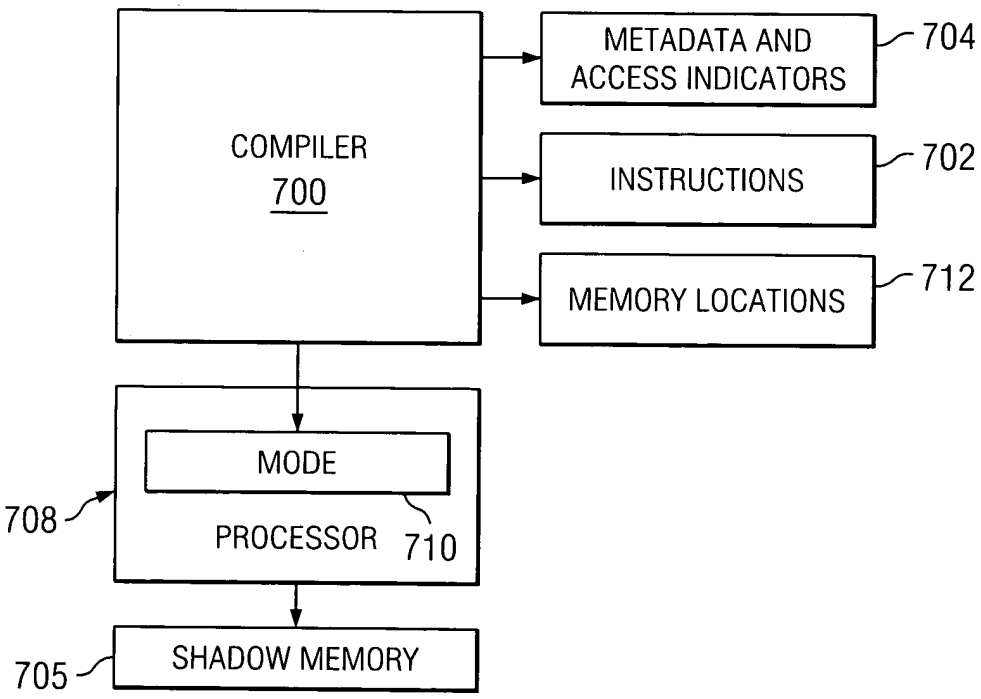

FIG. 7

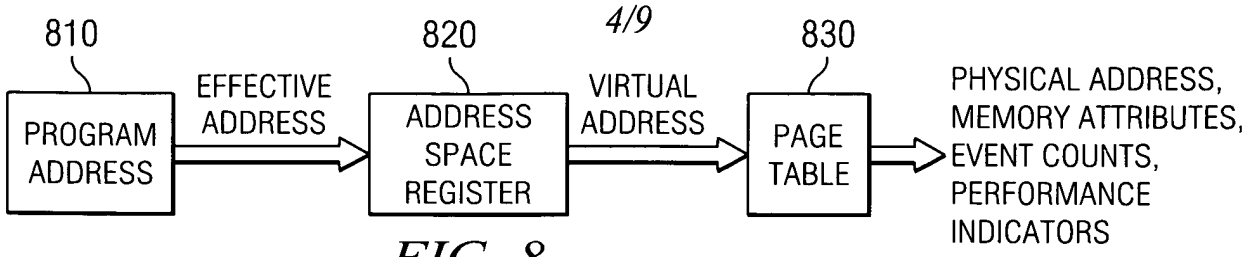

FIG. 8

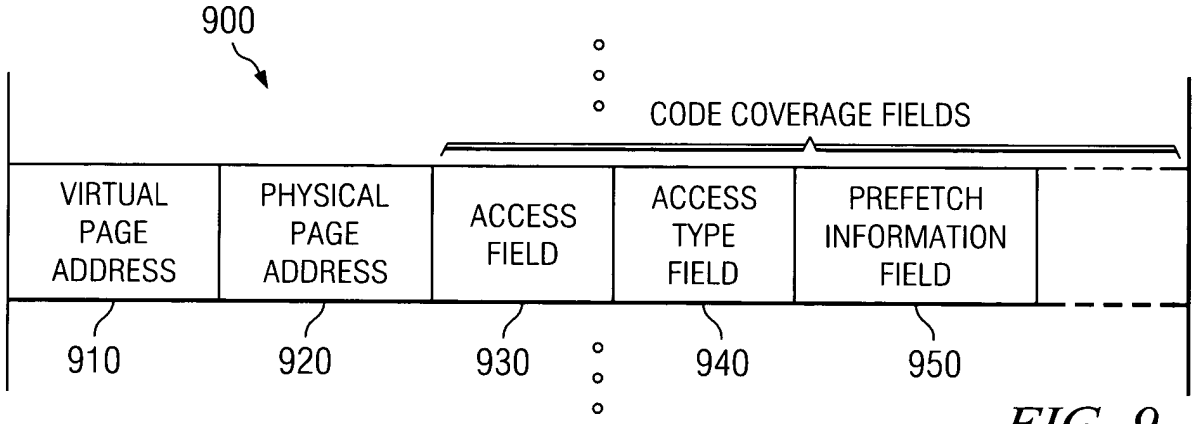

FIG. 9

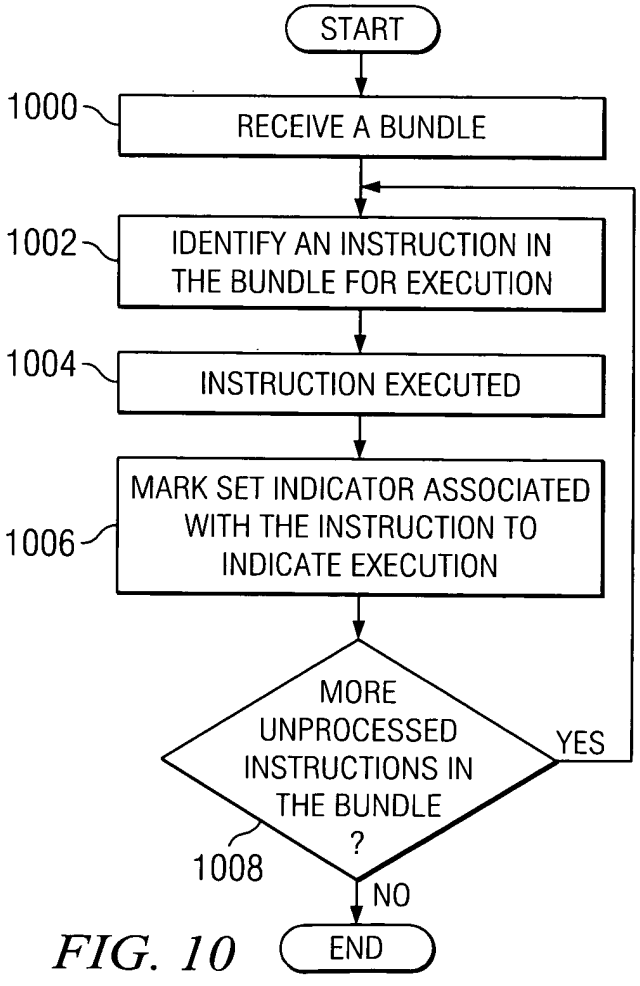

FIG. 10

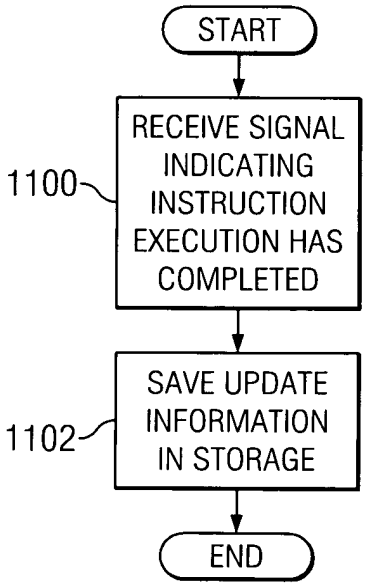

FIG. 11

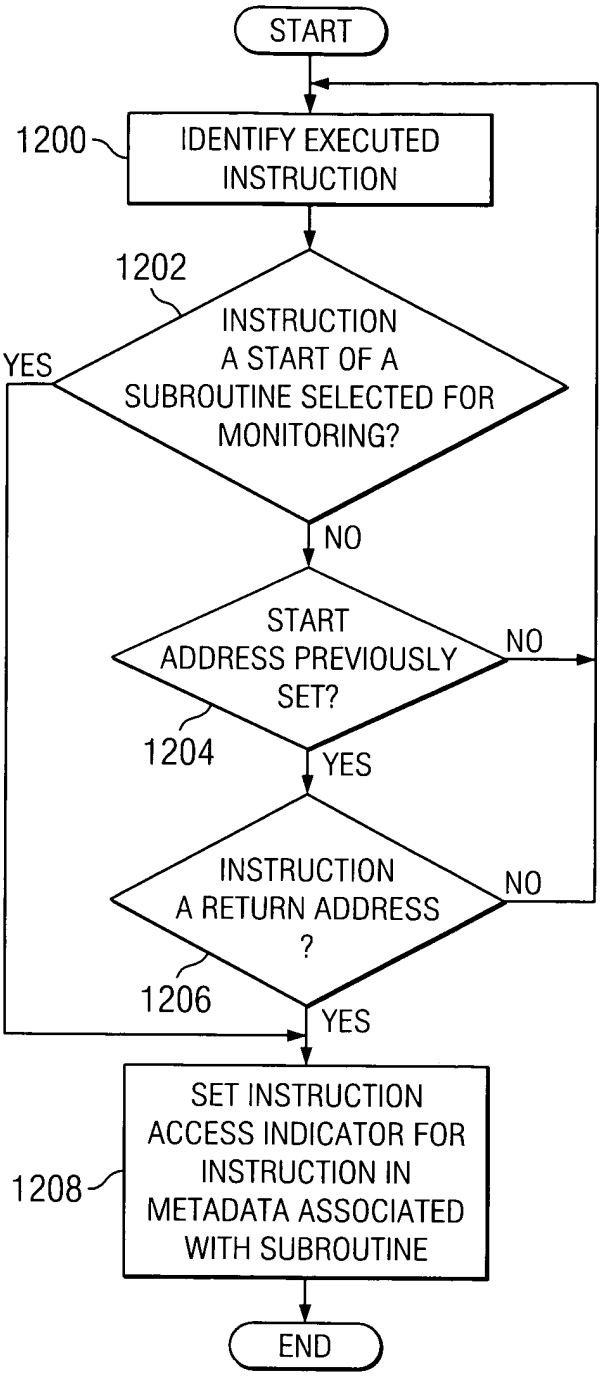

FIG. 12

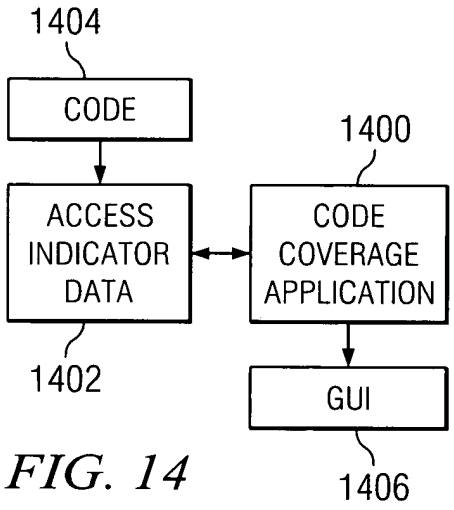

FIG. 14

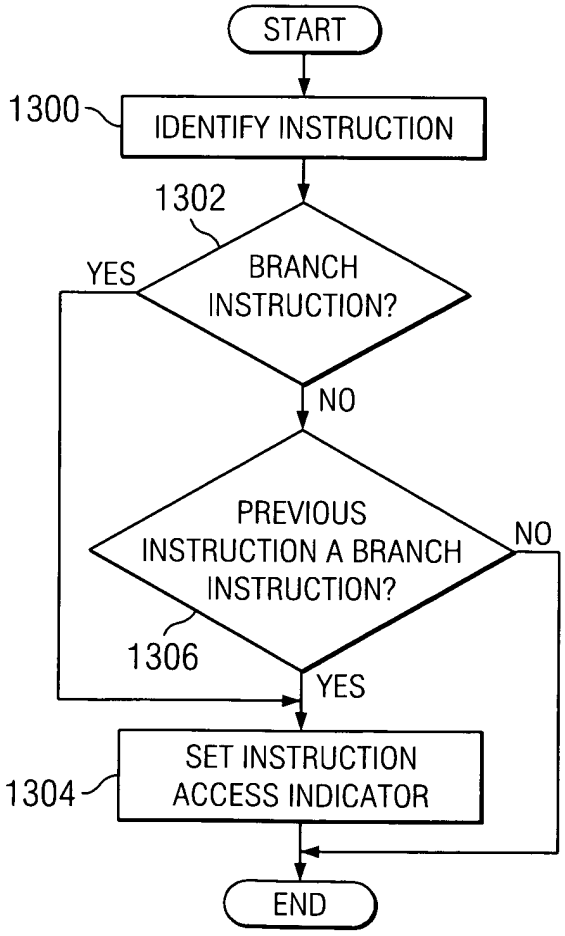

FIG. 13

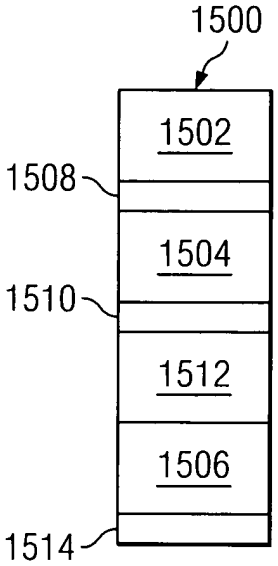

FIG. 15

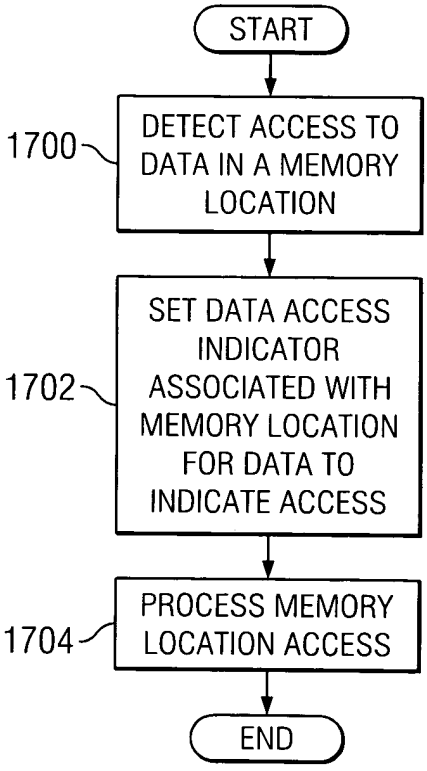

FIG. 17

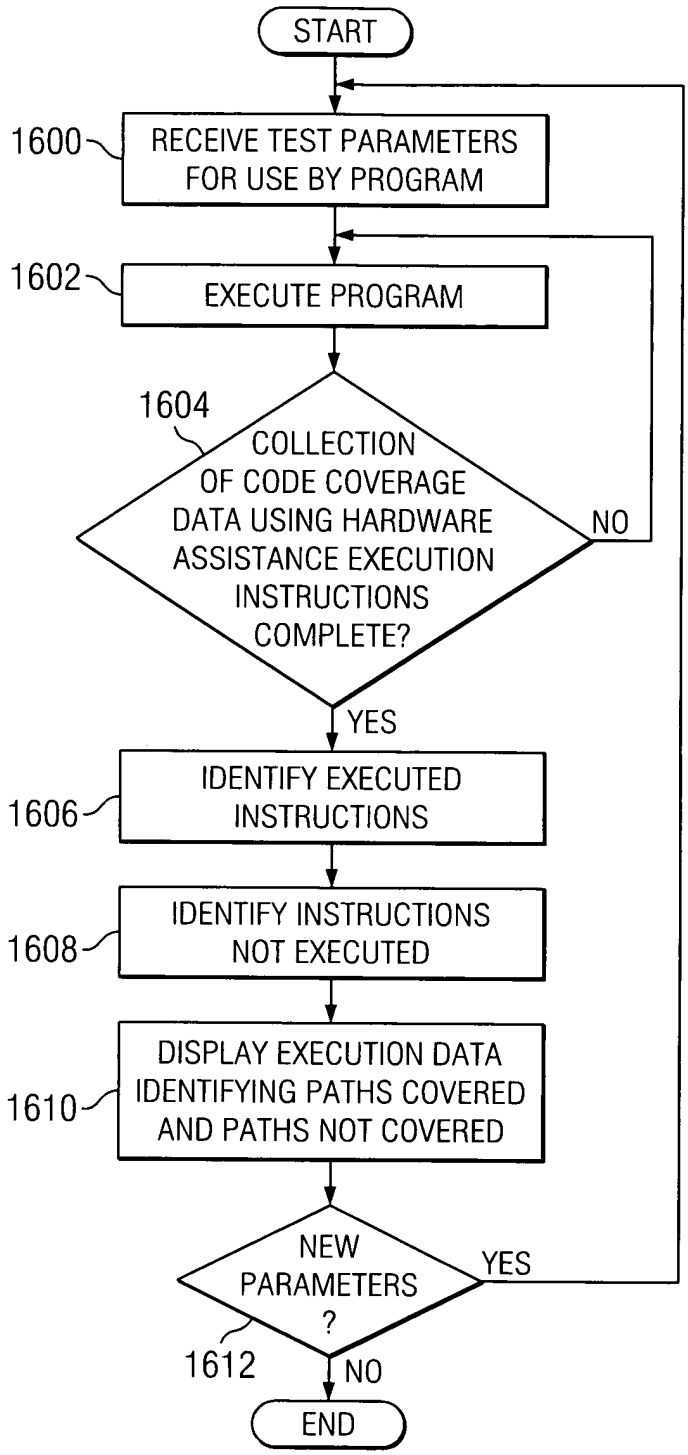

FIG. 16

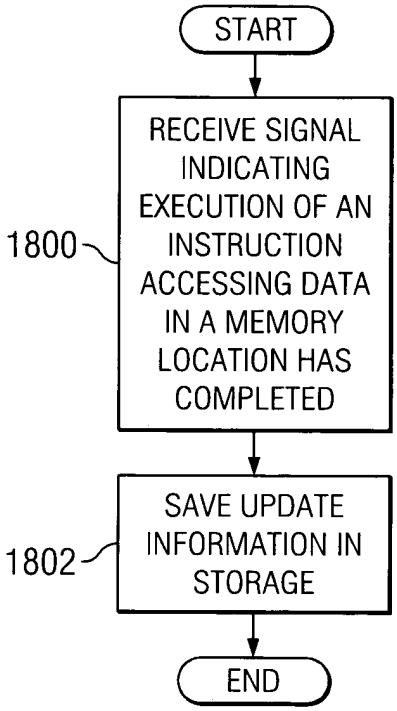

FIG. 18

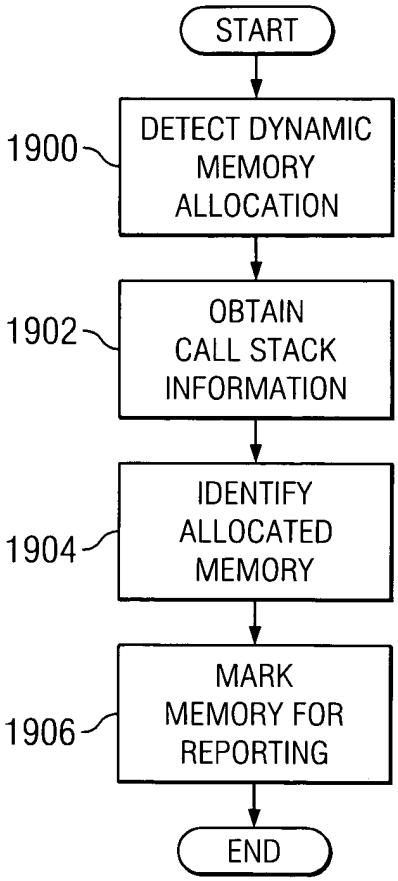

FIG. 19

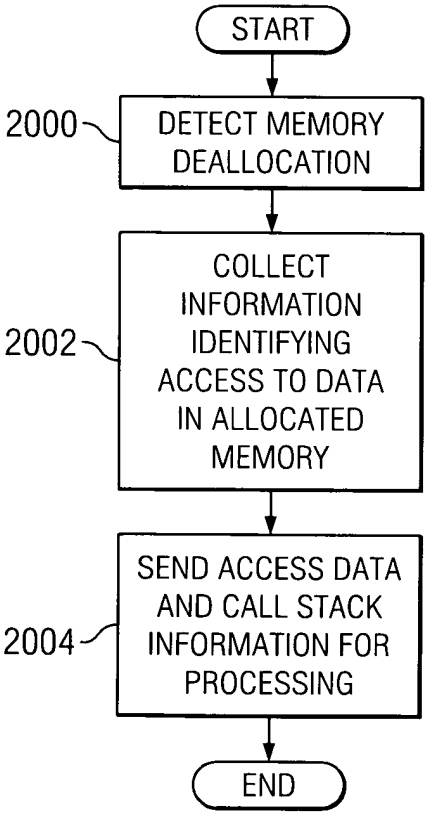

FIG. 20

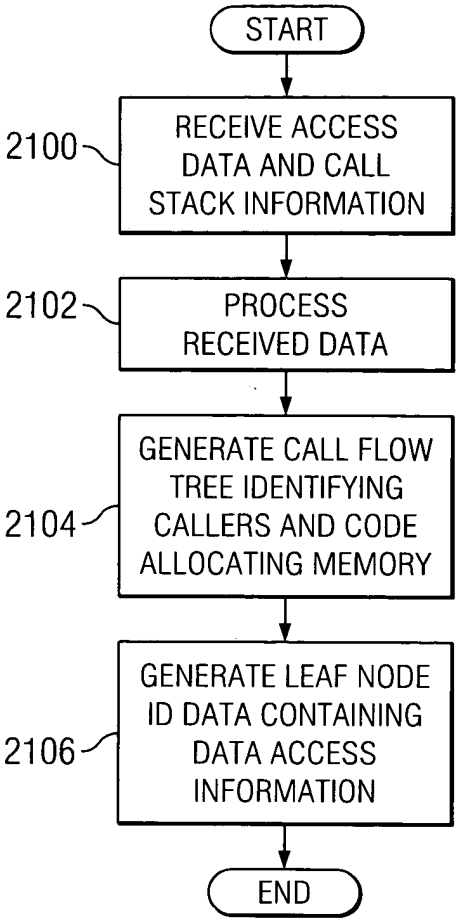

FIG. 21

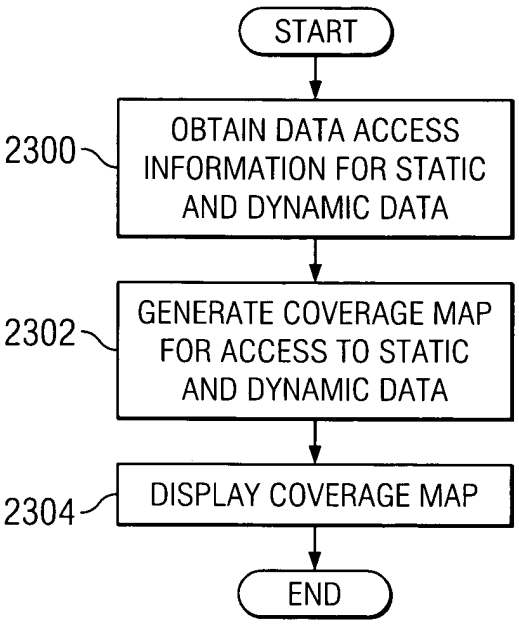

FIG. 23

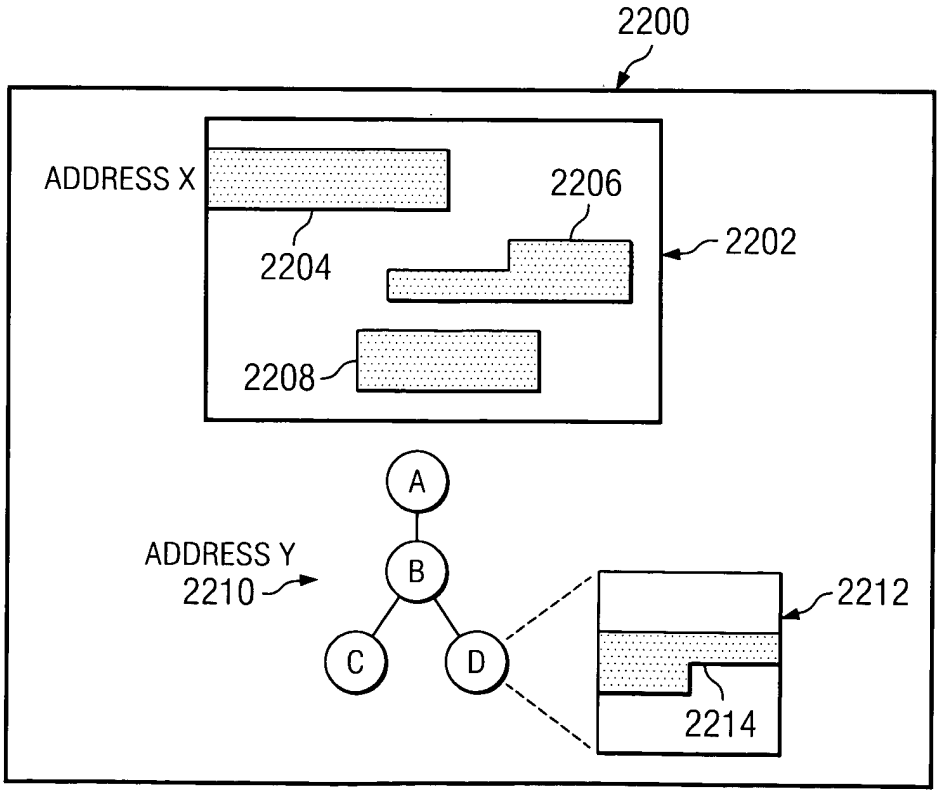

FIG. 22

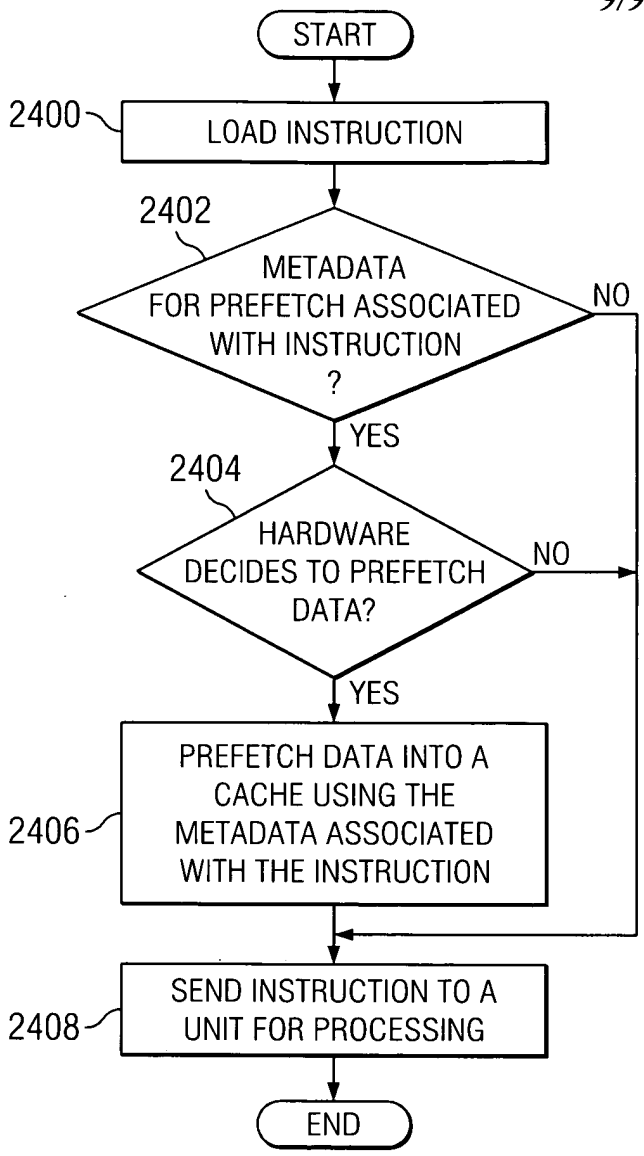
START
2400
LOAD INSTRUCTION
2402
METADATA FOR PREFETCH ASSOCIATED WITH INSTRUCTION ?
NO
YES
2404
HARDWARE DECIDES TO PREFETCH DATA?
NO
YES
2406
PREFETCH DATA INTO A CACHE USING THE METADATA ASSOCIATED WITH THE INSTRUCTION
2408
SEND INSTRUCTION TO A UNIT FOR PROCESSING
END

FIG. 24

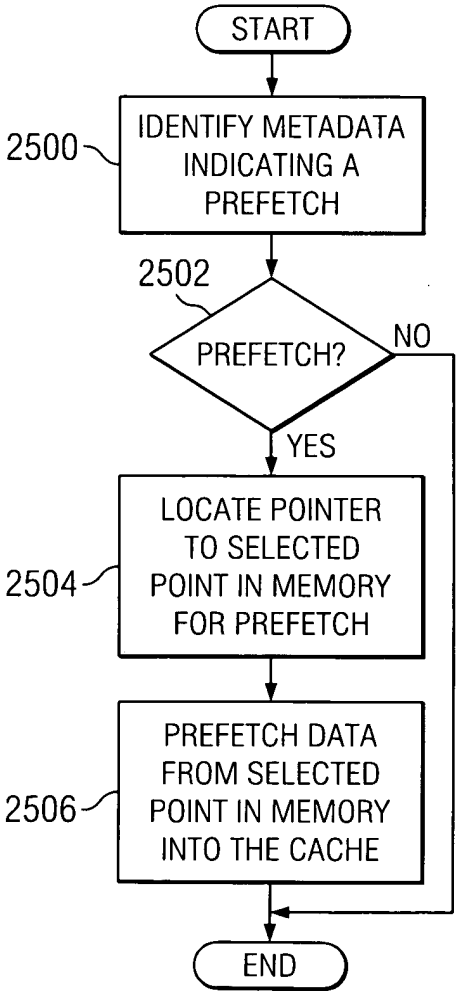
START
2500
IDENTIFY METADATA INDICATING A PREFETCH
2502
PREFETCH?
NO
YES
2504
LOCATE POINTER TO SELECTED POINT IN MEMORY FOR PREFETCH
2506
PREFETCH DATA FROM SELECTED POINT IN MEMORY INTO THE CACHE
END

FIG. 25